



## NOVA 32 & NOVA 32 M

### electronic single-phase energy meter multifunctional with the power monitor

with changes valid to: 10.1.2014

Features and specifications are subject to change.

### USER MANUAL

**KRALgroup**

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#### WARNING!

Device installation and use must be carried out only by qualified staff.

Switch off the voltage before device installation.

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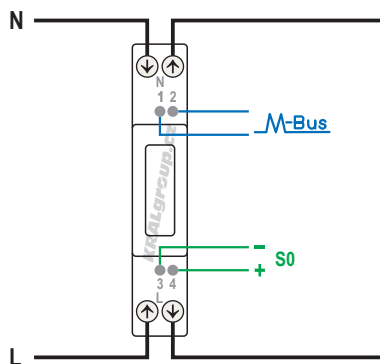
KEEP THIS INSTRUCTION MANUAL - CONTAINS, I.A., EU-DECLARATION OF CONFORMITY

#### AVAILABLE MODELS

| Model     | Voltage | Frequency | MID certified | Integrated M-BUS |
|-----------|---------|-----------|---------------|------------------|
| NOVA 32   | 230 V   | 50 Hz     | ■             | ■                |
| NOVA 32 M |         |           | ■             | ■                |

In all device models, partial counters are resettable.

#### WIRING DIAGRAM



#### NOTE !

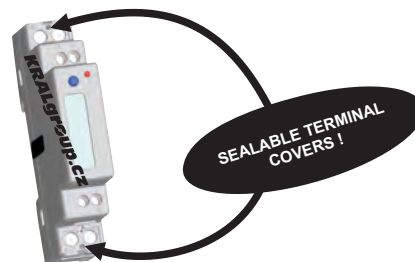
The wiring diagrams, show the device complete with pulse output and RS485 or M-Bus interface.

In case of version without of these features, the corresponding terminals must not be considered.

#### OVERVIEW

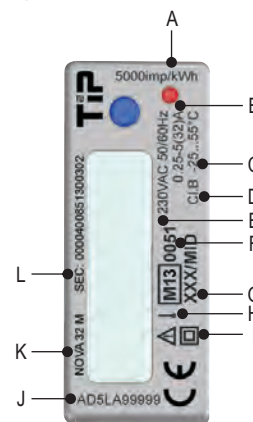


1. Neutral terminals
2. M-BUS connection terminals (only with NOVA 32 M model)
3. Metrological LED
4. Multifunction key
5. Backlight LCD display
6. Terminals for the S0 output
7. Current and voltage terminals
8. Safety-sealing (DO NOT REMOVE)



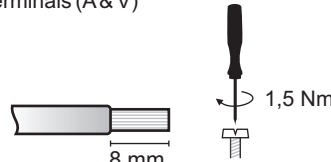
#### SYMBOLS ON FRONT PANEL (EXAMPLE)

- A. Meter constant (metrological LED) R<sub>L</sub>
- B. Base current (max current) I<sub>max</sub>
- C. Working temperature range
- D. Accuracy class
- E. Nominal voltage/frequency
- F. MID approval symbols
- G. Type approval certification
- H. Wiring type (1phase, 2 wires)
- I. Protection class
- J. Serial number
- K. Device name
- L. Secondary address (only for NOVA 32 M model)



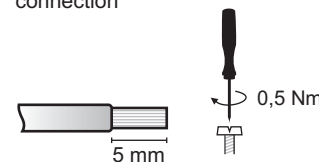
#### CABLE STRIPPING LENGTH

Connection measuring terminals (A & V)



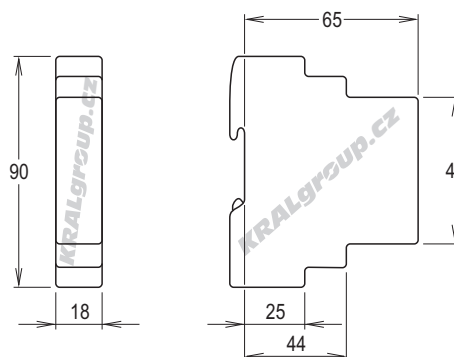
Use a PZ1 screwdriver.

S0 output / M-BUS terminals connection



Use a blade screwdriver with 0,8x3,5 mm size.

#### DIMENSIONS (mm)



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## SYMBOLS ON DISPLAY

Display test can be carried out by pressing the key for 10 s.

| SYMBOL    | DESCRIPTION   |
|-----------|---|
|           | Metrological parameters corrupted<br>The counter cannot be used and it must be returned to the Manufacturer |
|           | Active S0 output (active energy)  |
|           | Communication ON status   |
|           | Main area   |
|           | Partial counter value. If flashing, the counter is stopped.   |
| VA<br>kWh | Measuring unit area   |

## KEY FUNCTIONS

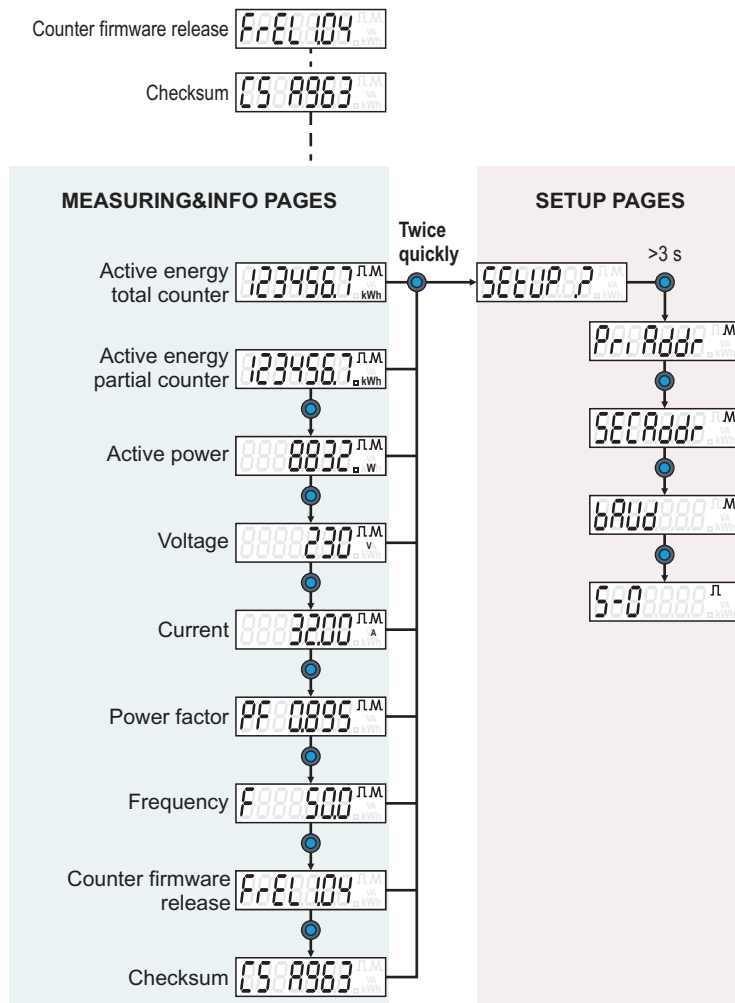
| HOW TO  | WHERE                               | PRESS TIME    |
|---|-------------------------------------|---------------|
| Scroll pages in a loop                                | Any loops page                      | Instantaneous |
| Display "Setup?" page for Setup access                | Any page except for Setup           | Twice quickly |
| Access Setup pages                                    | "Setup?" page                       | >3 s          |
| Enable setup for a value/digit                        | Setup pages                         | Twice quickly |
| Change a value/digit                                  | Setup pages                         | Instantaneous |
| Confirm a value/digit                                 | Setup pages                         | Twice quickly |
| Change item (Y, N, C)                                 | "Save?" page                        | Instantaneous |
| Confirm the displayed item (Y, N, C)                  | "Save?" page                        | >3 s          |
| Display the functions available for the shown counter | Partial counter page                | >3 s          |
| Change function (Start, Stop, Reset)                  | Partial counter page                | Instantaneous |
| Confirm the displayed function (Start, Stop, Reset)   | Partial counter page                | >3 s          |
| Display test  | Instantaneous values and Info pages | >10 s         |

## MEASUREMENTS

|                                   | SYMBOL | MEASURE UNIT   | DISPLAY | BY M-BUS NETWORK |
|-----------------------------------|--------|----------------|---------|------------------|
| <b>INSTANTANEOUS VALUES</b>       |        |                |         |                  |
| Voltage                           | V      | V              | ●       | ●                |
| Current                           | I      | A              | ●       | ●                |
| Power factor                      | PF     |                | ●       | ●                |
| Active power                      | P      | kW             | ●       | ●                |
| Frequency                         | f      | Hz             | ●       | ●                |
| <b>RECORDED DATA</b>              |        |                |         |                  |
| Total active energy               | L      | kWh            | ●       | ●                |
| Resettable partial energy counter | L      | kWh            | ●       | ●                |
|                                   | SYMBOL | VALUE / STATUS | DISPLAY | BY M-BUS NETWORK |
| Partial counter                   |        | START/STOP     | ●       | ●                |
| Active communication              |        | ON/OFF         | ●       | ●                |
| Active S0 output                  |        | ON/OFF         | ●       | ●                |
| Error condition                   |        | 01/02          | ●       | ●                |
| <b>LEGEND</b> ● = AVAILABLE       |        |                |         |                  |

## PAGE STRUCTURE

At device switching on, pages for firmware release and checksum are automatically displayed. After few seconds, the counter will automatically switch on the last displayed page of Measuring&Info pages loop. Device pages are grouped in 2 loops: Measuring&Info pages and Setup pages. Measuring&Info pages allow to display the measurements and the counter info. Setup pages allow to access the counter settings.



Press the key once (●) to scroll pages in a loop.

## HOW TO START / STOP / RESET PARTIAL COUNTERS

Feature available only on partial counter pages.

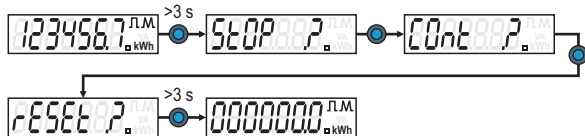
### HOW TO START DISPLAYED PARTIAL COUNTER



### HOW TO STOP DISPLAYED PARTIAL COUNTER PREVIOUSLY STARTED



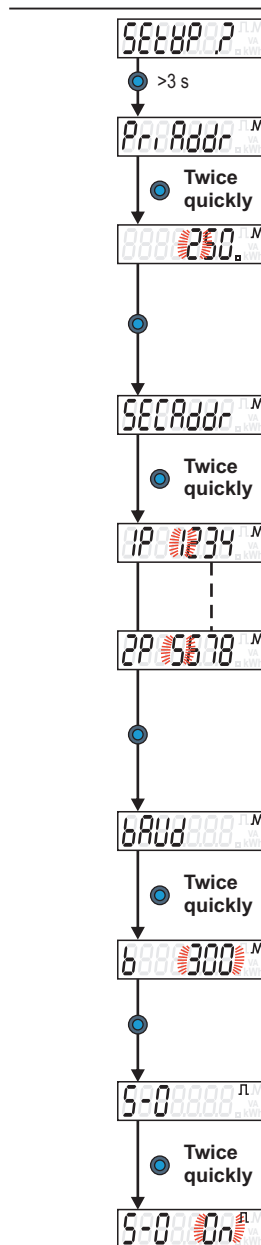
### HOW TO RESET DISPLAYED PARTIAL COUNTER



### BACK TO THE MEASUREMENT PAGES WITHOUT OPERATING ON PARTIAL COUNTER



## SETUP PAGES



### SETUP ACCESS PAGE

#### M-BUS PRIMARY ADDRESS (0+250) Available only in case of NOVA 32 M model

1. Press the key twice quickly, the first digit will start to flash.
2. Press the key once to change the value.
3. Confirm by pressing the key twice quickly.
4. Repeat points 2 and 3 for the other digits.

#### M-BUS SECONDARY ADDRESS (0+FFFFFFF) Available only in case of NOVA 32 M model

The value is displayed on 2 pages:

- Page 1 (→): digit from 1 to 4
  - Page 2 (←): digit from 5 to 8
1. Press the key twice quickly, the first digit of the secondary address will start to flash.
  2. Press the key once to change the value.
  3. Confirm by pressing the key twice quickly.
  4. Repeat points 2 and 3 for the other digits.

#### COMMUNICATION SPEED (300, 2400, 9600) Available only in case of NOVA 32 M model

1. Press the key twice quickly, the value will start to flash.
2. Press the key once to change the value.
3. Confirm by pressing the key twice quickly.

#### S0 OUTPUT ENABLE/DISABLE (Default: enabled)

1. Press the key twice quickly, a new page will be displayed.
2. Press the key once to change the flashing value, **On** to enable the output combined to the active energy counter, **Off** to disable it.
3. Confirm by pressing the key twice quickly.

>3 s

### ON ANY SETUP PAGE



#### EXIT FROM SETUP

1. Press the key once to change the flashing value, **Y** to exit and save the settings, **N** to exit without saving, **C** to continue scrolling setup pages.
2. Confirm by pressing the key for more than 3s.

## TECHNICAL FEATURES

| Data are in compliance with standards   | EN50470-1, EN 50470-3, EN 62053-31 |
|---|------------------------------------|
| <b>GENERAL</b>  |                                    |
| Housing in compliance with standard   | DIN 43880                          |
| Terminals in compliance with standard   | EN 60999                           |
| <b>AUXILIARY POWER SUPPLY</b>   |                                    |
| Power supplied from the voltage circuit   | -                                  |
| Voltage range   | 230 V $\pm$ 20%                    |
| Consumption   | 0,8 VA max.                        |
| Nominal frequency   | 50/60 Hz                           |
| <b>CURRENT (A)</b>  |                                    |
| Maximum current $I_{max}$   | 32 A                               |
| Basic current $I_{ref}$ ( $I_b$ )   | 5 A                                |
| Ratio current $I_{tr}$  | 500 mA                             |
| Minimum current $I_{min}$   | 250 mA                             |
| Starting current $I_{st}$   | 20 mA                              |
| <b>ACCURACY</b>   |                                    |
| Active energy class B according to  | EN 50470-3                         |
| <b>S0 OUTPUT</b>  |                                    |
| NPN Passive optoisolated  | -                                  |
| Meter constant $R_a$  | 1000 Imp./kWh                      |
| Maximum values (in compliance with EN 62053-31)   | 27 V <sub>DC</sub> - 27 mA         |
| Total active energy counter   | kWh                                |
| Pulse length  | 100ms                              |
| <b>METROLOGICAL LED</b>   |                                    |
| Meter constant $R_L$  | 5000 Imp./kWh                      |
| <b>WIRE DIAMETER FOR TERMINALS</b>  |                                    |
| Measuring terminals (A & V)   | 1,5 $\div$ 6 mm <sup>2</sup>       |
| S0 output / M-BUS terminals   | 0,14 $\div$ 2,5 mm <sup>2</sup>    |
| <b>SAFETY ACCORDING TO EN 50470-1</b>   |                                    |
| Indoor installation   | -                                  |
| Pollution degree  | 2                                  |
| Protective class (EN 50470-1)   | II                                 |
| Pulse voltage test  | 1,2/50 $\mu$ s 6kV                 |
| AC voltage test (EN 50470-3, 7.2)   | 4 kV                               |
| Housing material flame resistance   | UL 94 class V0                     |
| <b>ENVIRONMENTAL CONDITIONS</b>   |                                    |
| Mechanical environmental  | M1                                 |
| Electromagnetic environmental   | E2                                 |
| Operating temperature   | -25°C ... +55°C                    |
| Storage temperature   | -25°C ... +75°C                    |
| Humidity (without condensation)   | max. 80%                           |
| Sinusoidal vibration amplitude  | 50 Hz $\pm$ 0,075 mm               |
| Protection degree - frontal part (granted only in case of installation in a cabinet with at least IP51 protection degree) | IP 51                              |
| Protection degree - terminals   | IP 20                              |
| <b>INTERNAL USE</b>   |                                    |
|   | -                                  |

## WASTE DISPOSAL

ATTENTION - Dispose of ecologically!  
Does not belong to the mixed waste!

This product may not be, at the end of its useful life, disposed of with normal household waste but must be returned to a collection point for recycling of electronic equipment. Please check with your dealer or local authorities for disposal of the competent authority.



## EU-DECLARATION OF CONFORMITY

Product name: **SINGLE-PHASE STATIC WATT-HOUR METER FOR REGISTRATION OF ACTIVE ENERGY CONSUMPTION**

Type designation: **NOVA 32  
NOVA 32 M**

EC-Type test certificate: **173/MID**

Number and address of notified person:  
(Module B+D) 0051  
IMQ SpA  
Via Quintiliano 43  
I-20138 MILANO

Metrology marking: **CE-M13-0051**

The watt-hour meters NOVA 32 and NOVA 32 M meet the requirements of EN50470-1, EN 50470-3, EN 62053-31 standards for registration of active energy of class B (for active energy) in direct connection into the single-phase electricity network.

Potential-free-pulse-transmitter complies to DIN EN 62053-31 standard for installation of broadcasting impulses for Class B for the transmitter of type "S0".

The meter conforms to MID for billing and metering electricity consumption in the terms and in the way of its connection to the single-phase electricity network.

The external dimensions of the meter corresponds to the built-in devices of the 1-module (1-TE) size according to DIN 43880 standard.

Installation of the energy meters is designed for mounting on a standard DIN-rail 35 mm wide according to DIN EN 50022 standard.

The electric protection class of the energy meters corresponds to IP20 (IP51) according to DIN EN 60529 standard.

Prague, 22.10.2013

## WARNINGS

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## Your partner for measuring the energy

DIN RAIL MOUNTED kWh METERS  
PREPAYMENT kWh METERS  
CREDIT CARDS kWh METERS  
GSM OPERATED kWh METERS  
SPECIAL kWh METERS  
OTHERS FOR THE MEASUREMENT OF ELECTRICITY. ENERGY  
CURRENT TRANSFORMERS  
MEASURING POWER IN HARBORS AND ANCHORAGE SHIP  
(MARINAS)  
MEASURING POWER IN THE CAMP, IN TRADE FAIR,  
EXHIBITION, BUSINESS, COMMERCIAL AND  
ADMINISTRATIVE CENTERS  
ENERGY MANAGEMENT SYSTEMS  
(M-Bus, PLC, GSM, RS-485, EIB, INSTA-BUS)

Our advice is for You with pleasure